

## **Amendments to the Claims**

The Listing of Claims presented below will replace all prior versions, and listings, of claims in the application.

### **Listing of Claims**

1-53. (Canceled)

54. (New) An array comprising:

an optical fiber; and

a library of chemical compounds attached to the optical fiber in a linear arrangement, the library being combinatorial in that its members can be generated via chemical reactions in which a first set of moieties is attached to a second set of intermediates so that a larger number of products is produced than different chemical reactions are performed.

55. (New) An array comprising:

an optical fiber;

a collection of chemical compounds linearly arranged along the optical fiber; and

a geometric substrate about which the optical fiber is wrapped.

56. (New) The array of claim 55, wherein each of the chemical compounds is covalently attached to the optical fiber.

57. (New) The array of claim 54, further comprising a substrate about which the optical fiber is wrapped.

58. (New) An array comprising:

an optical fiber; and

a library of chemical compounds covalently attached to the optical fiber in a linear arrangement, wherein members of the library are related to one another by synthetic history, such that each member of a first subset of compounds within the library shares a first common feature resulting from a first common chemical reaction, and each member of the first subset of compounds is separated from each next closest member by a first distance.

59. (New) The array of claim 58, wherein each member of a second subset of compounds within the library shares a second common feature resulting from a second common chemical reaction, and each member of the second subset of compounds is separated from each next closest member by a second distance, the second distance being different from the first distance.

60. (New) The array of claim 58, wherein the array comprises at least three subsets of compounds, wherein each member of a subset of compounds within the library shares a common feature resulting from a common chemical reaction, and each member of the subset of compounds is separated from each next closest member by a distance, the distance being a characteristic of the subset.

61. (New) The array of claim 58, 59, or 60, further comprising a geometric substrate about which the optical fiber is wrapped.

62. (New) The array of claim 58, 59, or 60, wherein the optical fiber is wrapped about the substrate in a spiral.

63. (New) The array of claim 61, wherein the optical fiber is wrapped about the substrate in a spiral.

64. (New) The array of claim 55 or 56, wherein the collection of chemical compounds comprises a library that is combinatorial in that its members can be generated via chemical

reactions in which a first set of moieties is attached to a second set of intermediates so that a larger number of products is produced than different chemical reactions are performed.

65. (New) The array of claim 58, wherein the library of chemical compounds is combinatorial in that its members can be generated via chemical reactions in which a first set of moieties is attached to a second set of intermediates so that a larger number of products is produced than different chemical reactions are performed.

66. (New) The array of claim 54, 55, or 58, wherein the chemical compounds are proteins.

67. (New) The array of claim 54, 55, or 58, wherein the chemical compounds are peptides.

68. (New) The array of claim 54, 55, or 58, wherein the optical fiber is divided into reactant regions.

69. (New) The array of claim 54, 55, or 58, wherein the optical fiber comprises a cladding.

70. (New) The array of claim 69, wherein the cladding is a sol-gel matrix.

71. (New) The array of claim 69, wherein the cladding is a polymer.

72. (New) The array of claim 54, 55, or 58, wherein the optical fiber is derivatized.

73. (New) The array of claim 72, wherein the optical fiber is aminopropylsilylated.

74. (New) The array of claim 72, wherein the optical fiber is silylated.

75. (New) The array of claim 54, 55, or 58, wherein the optical fiber is coated with at least one layer of cladding.